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A SURVEY OF THE CHALLENGES FACED BY HEALTH INFORMATION MANAGEMENT OFFICERS IN PROVIDING HEALTH INFORMATION SERVICES IN SELECTED HOSPITALS IN OGUN STATE

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ABSTRACT

Health information management is a critical function in healthcare delivery, yet health information managers often face various challenges in fulfilling this role. This study investigated the perceived challenges encountered by health information managers in selected hospitals in Ogun State, Nigeria. A descriptive survey was employed in this study. Data collection was done by administering structured questionnaires to 214 Health Information Managers who were recruited from primary, secondary, and tertiary healthcare facilities. Descriptive statistics, analysis of variance (ANOVA), and post-hoc tests were employed to analyze the data. The results revealed several key challenges, including inadequate training and resources (mean = 3.21, SD = 0.83), lack of interoperability among health information systems (mean = 3.14, SD = 0.88), frequent technical issues and system downtimes (mean = 3.10, SD = 0.84), inadequate staffing levels (mean = 3.06, SD = 0.87), and the absence of standardized processes and guidelines (mean = 3.03, SD = 0.82). The overall grand mean of 2.89 (SD = 0.66) indicated a high level of agreement among the respondents regarding the challenges faced. The ANOVA results showed a statistically significant difference in the perceived challenges among the three levels of healthcare (F(2, 211) = 18.739, p = 0.001). Post-hoc analysis revealed significant mean differences between Primary and Secondary Health Care Information Managers (mean difference = 2.100, p = 0.024) and between Primary and Tertiary Health Care Information Managers (mean difference = 2.300, p = 0.019), but no significant difference between Secondary and Tertiary Health Care Information Managers. The findings highlight the need for a comprehensive, system-wide approach to address

the multifaceted challenges in health information management. Targeted interventions, such as capacity building, technology upgrades, staffing enhancements, and the development of standardized policies and procedures, are crucial to improving the efficiency and effectiveness of health information services. Collaborative efforts among health information managers at various levels of the healthcare system can contribute to the identification and dissemination of best practices.

Keywords: Health Information Management, Perceived Challenges, Primary Healthcare, Secondary Healthcare, Tertiary Healthcare

Introduction

The integration of Health Information Management Systems (HIMS) faces significant challenges due to the dynamic nature of healthcare. This dynamic nature is characterized by evolving medical practices, shifting regulatory landscapes, and emerging technologies. Ojo and Popoola (2016) highlight the need for flexible and adaptive information management systems to keep up with the rapid pace of change in healthcare. However, existing HIMS may struggle to meet this requirement. Therefore, it is crucial to understand and address the dynamic nature of healthcare to effectively deploy these systems. Additionally, socio-economic factors contribute to the challenges encountered in HIMS implementation, particularly in Nigeria. The socio-economic landscape of Nigeria includes disparities in income, education, and access to technology, which complicate efforts to ensure equitable access to and utilization of HIMS.

Adeleke and Adeleke (2017) emphasize the importance of considering socio-economic factors in the design and implementation of health information technologies. To achieve widespread adoption and efficacy across diverse segments of the population, it is imperative to acknowledge and mitigate these disparities. Furthermore, infrastructural limitations pose a significant hurdle to the seamless integration of HIMS in Nigeria. Inadequate technological infrastructure, unreliable power supply, and limited internet connectivity impede the optimal functioning of electronic health information systems in many regions. Adeloye (2017) emphasizes the need for substantial investment in infrastructure to effectively support the deployment of health information technologies. Addressing these infrastructural limitations is crucial to ensure the accessibility and sustainability of HIMS across different healthcare settings in Nigeria.

Data security concerns also represent a critical dimension of the challenges faced in HIMS implementation. Health information is sensitive and private, necessitating robust security measures to protect against unauthorized access and breaches. Adebayo and Uzoka (2019) emphasize the importance of meticulous attention to data security protocols to build trust among healthcare practitioners and patients. Given the inherent vulnerabilities in the digital transmission and storage of health data, ensuring data security is essential. Resistance to change within the healthcare workforce is another recurrent

challenge in the implementation of HIMS. Shifting from traditional, paper-based record-keeping to electronic systems requires a cultural and mindset change among healthcare professionals. In a related study, Iheagwara (2018) highlights the importance of comprehensive training programs and change management strategies to address this resistance. Effectively managing this resistance is integral to fostering a smooth transition to HIMS and maximizing their potential benefits.

Statement of the Problem

The implementation of Health Information Management Systems (HIMS) in Nigeria holds the promise of transformative benefits for healthcare delivery, but is beset by a spectrum of challenges. The dynamic and complex nature of the healthcare sector, coupled with socio-economic factors, presents obstacles to the seamless integration of HIMS (Ojo & Popoola, 2016). Infrastructural limitations, such as inadequate technological infrastructure and unreliable power supply, hinder the optimal functioning of electronic health information systems (Adeloye, 2017). Data security concerns are also a critical aspect, as there is a need for robust measures to protect sensitive health information (Adebayo & Uzoka, 2019). Furthermore, resistance to change within the healthcare workforce adds another layer of complexity, necessitating comprehensive strategies to address mindset shifts and foster a culture conducive to HIMS adoption (Iheagwara, 2018). This study aims to comprehensively explore the nuanced perspectives of Health Information Managers (HIMs) in Nigeria, shedding light on the intricacies of HIMS implementation and management. The focus will be on the quality, satisfaction, and challenges associated with these systems. Through an in-depth analysis of these dimensions, the study seeks to identify specific areas of improvement and refinement, contributing to the enhancement of healthcare quality in the Nigerian context.

Objectives

The general objective of this study is to investigate the challenges faced by Health Information Management Officers in providing health information services in selected hospitals in Ogun State. The specific objectives are set to:

1. investigate the challenges faced by Health Information Managers in providing health information services in selected hospitals in Ogun State.
2. determine the difference in the perception of health information management officers on the challenges faced by health information managers in providing health information services

Research Questions

The following resaerch questions were raised to guide the conduct of this study.

1. What are the challenges faced by Health Information Managers in providing health information services in selected hospitals in Ogun State?
2. What is the significant difference in the perception of health information management officers on the challenges

faced by health information managers in providing health information services?

Literature Review

Scholars have investigated several challenges associated with records management in Nigerian hospitals and proposed strategies for improvement. Mampe and Kalusopa (2012) examined records in the Ministry of Health's corporate services department and found that a legal mechanism for record management practices is still lacking and not developed, let alone implemented. In a related study, Kemoni, Ngulube, and Stilwell (2006, cited in Ondieki 2017) reiterated that proper record management is essential for governments to achieve goals like the rule of law, transparency, control of state resources, defense of citizens' freedoms, and improved international relations. Building on this, Nandain (2006) stated that effective information and records management provides the foundation for accountability, protection of human rights, and increased citizen awareness of their rights.

Examining health records in Ghana, Danso (2015) found a weak health information management system that negatively impacted decision-making in many health facilities. The study concluded that implementing an electronic health records system is necessary for preserving and retrieving patient health information.

In Nigeria, Yaya et al. (2015) studied management problems at two health institutions in Lagos State. Their findings revealed unequal patient record handling methods due to inadequate funding, failure to incorporate electronic health information programs, and lack of records preservation and conservation policies, resulting in poor health information management. Similarly, Osundina et al. (2015) assessed record management in Osun State hospitals and found issues like lack of uniform management policy, legal authority for record disposition, funding for filing equipment, and consideration by administrators, leading to misfiling, overcrowding, and limited storage. Attah (2017) investigated the implementation of electronic health records in Nigerian secondary healthcare facilities, emphasizing that health records are vital for healthcare. Scholars like Mampe (2013) and Luthuli (2017) have argued that health information management practices are central to transparency, accountability, security, integrity, and comprehensiveness of healthcare delivery.

Theoretical Review

Design-reality distance (Heeks, 2002). The concept of "design-reality distance" was first proposed and developed by Richard Heeks in the late 1990s and early 2000s. The concept was introduced by Richard Heeks, a professor of Information Systems and Development, to highlight the importance of understanding the contextual factors that can influence the success or failure of information system projects, especially in developing countries. The key aspects of design-reality distance include:

Information - The gap between the information and data requirements assumed

in the system design versus the actual information and data available and used in the real-world context.

Technology - The gap between the technological infrastructure, equipment, and skills assumed in the design versus the actual technological environment and capabilities present.

Processes - The gap between the work processes, procedures, and routines assumed in the design versus the actual processes used in the real-world context.

Objectives and values - The gap between the goals, motives, and values assumed in the design versus the actual objectives and motivations of the various stakeholders.

Staffing and skills - The gap between the human resource requirements assumed in the design versus the actual staffing levels and skills available.

Management systems and structures - The gap between the organizational structures and management processes assumed in the design versus the actual structures and processes in place.

Other resources - The gap between the other resources (time, money, etc.) assumed in the design versus the actual resources available.

The larger the design-reality distance, the higher the risk of information system failure or poor outcomes. Understanding and addressing these gaps is crucial for successful information system implementation, especially in complex, resource-constrained environments. More precisely, the "design-gap" paradigm offers a medium to present the perception of the technology and its meaning by HIS designers against the perception of the same technology by HIS end-users. Based on this, the gap model for "concept truth" provides three hard-soft gap archetypes that are essential to understanding health care problems. Technical rationality, administrative rationality, and medical objectivity are such archetypes.

Challenges faced by Health Information Managers

According to Adeleke et al. (2018), the challenges of health information management often arise from the interplay of technological, human, and organizational factors that influence the implementation and usage of healthcare information systems.

Technological challenges refer to issues related to the availability, quality, and use of equipment, tools, and systems for health information management. These challenges can include a lack of technology standardization and a well-developed healthcare information exchange (HIE) to enable the free sharing of healthcare data across institutions.

Personnel challenges relate to problems with the availability, quality, and motivation of human resources for health information management. Some of the key personnel challenges faced by health information managers (HIMs) in Nigeria include shortages of skilled technical staff and difficulties in recruiting and retaining qualified professionals.

Institutional challenges refer to problems with the policies, standards, and regulations that govern health information management. Institutional challenges for HIMs in Nigeria may include inadequate funding, lack of

comprehensive legislation and policy frameworks, and the absence of standardized practices for data management and security.

From a technical rationality perspective, HIS technology is often designed with the intention of being logical and unbiased, not subject to individual, cultural, or political factors. However, usability issues, lack of standardization, and interoperability challenges can compound technological problems.

The managerial rationality view emphasizes the economic and socio-political considerations that influence HIS design and implementation. Managers are typically concerned with costs, return on investment, and the interests of external stakeholders like the government. The high initial investment and low expected returns associated with HIS can present significant obstacles.

The medical rationality perspective recognizes that medical knowledge plays a central role in HIS, leading to the systems being designed according to an objective, logic-driven model that prioritizes the needs and perspectives of healthcare practitioners.

In the Nigerian context, several key challenges emerge in the implementation and management of Health Information Management Systems (HIMS):

Inadequate Funding: Limited financial resources allocated to healthcare hinder the optimal deployment and maintenance of HIMS, including infrastructure, technology, training, and system upgrades.

Technical Expertise: The scarcity of individuals with the necessary technical skills to manage, troubleshoot, and optimize the complex HIMS components poses a significant barrier.

Lack of Legislation/Policy: The absence of clear legal guidelines and policies creates ambiguity and inconsistencies in the collection, storage, and sharing of sensitive health data.

Deterioration of Digital Media: The vulnerability of digital media to physical degradation and technological obsolescence threatens the integrity, accessibility, and longevity of health data within HIMS.

Inadequate Technology Infrastructures: Insufficient investment in modern hardware, networking, and software components can lead to system inefficiencies, data integrity issues, and compromised functionality of HIMS.

According to (Adepoju & Opele, 2021) and (Akeju et al., 2016) addressing these challenges requires a multipronged approach involving increased funding, capacity building, legislative reforms, and the development of robust technological infrastructures to support the effective implementation and management of HIMS in Nigeria. This has also been shared by (J. Opele, 2019)

Research Method

This study employed a quantitative, descriptive survey research design. The population for the study comprised Health Information Managers working across all 4

tertiary, 23 secondary, and 607 primary hospitals in Ogun State, Nigeria. A multistage sampling technique was used. First, cluster sampling was employed to group the hospitals into three geographic clusters. Then, a random sampling technique was used to select six hospitals from these clusters, ensuring diverse representation. Finally, a purposive sampling approach was used to select 214 Health Information Managers from the chosen hospitals, targeting participants with relevant expertise and experience.

To ensure the validity of the research instrument, content validation was conducted by the research supervisor. This process involved a thorough review to ensure the questionnaire effectively measured the intended constructs. The reliability of the instrument was assessed using Cronbach's alpha. High alpha coefficients of 0.8, 0.8 and 0.9 were obtained, indicating a reliable and internally consistent questionnaire. Before the main study, a pilot study was carried out with a small sample of individuals similar to the target participants. This allowed for the evaluation and refinement of the questionnaire, addressing any ambiguities or issues. The data was collected through face-to-face interactions between the researcher and participants. This approach facilitated an in-depth understanding of perspectives and experiences, allowing for clarification and rapport-building. The data analysis employed a combination of descriptive and inferential statistics. Descriptive statistics, such as means and standard deviations, provided summaries of key variables. Inferential analysis, specifically one-way ANOVA and Tukey post-hoc tests, was used to examine the significance of differences in the perceptions of Health Information Managers regarding quality, job satisfaction, and challenges of health information services across the selected hospitals.

Presentation of Results

Table 1: Challenges Faced by Health Information Managers in Providing Health Information Services

Statements	Mean (X)	Std. D	Remark
The complexity of health information systems poses challenges in delivering efficient health information services.	2.18	0.87	Disagreed
Inadequate training and resources hinder the effective provision of health information services.	3.36	0.64	Agreed
There is a lack of interoperability among different health information systems, creating obstacles in service delivery.	3.22	0.68	Agreed
Frequent technical issues and system downtimes impede the smooth functioning of health information services.	3.21	0.63	Agreed
The volume and complexity of health data make it challenging to ensure data accuracy and integrity.	1.72	0.59	Disagreed
Inadequate staffing levels impact the timely and effective delivery of health information services.	3.29	0.58	Agreed

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The lack of standardized processes and guidelines contributes to challenges in health information management.	3.25	0.59	Agreed
Grand Mean	**2.89**		**Agreed**

Table 1 outlines the challenges encountered by health information managers in providing health information services within the sampled hospitals. The respondents expressed consensus on several challenges. Inadequate training and resources hinder effective provision of health information services (mean score 3.21). Lack of interoperability among different health information systems creates obstacles in service delivery (mean score 3.36). Frequent technical issues and system downtimes impede the smooth functioning of health information services (mean score 3.33). Inadequate staffing levels impact the timely and effective delivery of health information services (mean score 3.23). Lack of standardized processes and guidelines contributes to challenges in health information management (mean score 3.25). The respondents disagreed that the volume and complexity of health data make it challenging to ensure data accuracy and integrity (mean score 1.72). The grand mean of 2.89 indicates an overall agreement among health information managers regarding the challenges faced in delivering health information services. In summary, the key challenges identified were related to resources, interoperability, technical issues, staffing, and standardized processes, while data volume and complexity were not seen as major obstacles to ensuring accuracy and integrity.

H_0: There is no significant difference in the perceived challenges faced by health information managers in providing health information services among selected hospitals in Ogun State.

Table 2: ANOVA showing a significant difference in the perceived challenges faced by health information managers in providing health information services among selected hospitals in Ogun State
Challenges

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	2.550	2	1.275	18.739	.001
Within Groups	12.070	211	.057		
Total	14.620	213			

The results presented in Table 2 indicate a statistically significant difference in the perceived challenges faced by health information managers in providing health information services ($F(2, 211) = 18.739$, $p = .001$). This finding suggests that the variability observed in the perceived challenges is unlikely to be attributed to random chance alone. By rejecting the null hypothesis, we can infer that there are

systematic differences in the way health information managers perceive the challenges they encounter in delivering health information services. The statistical significance of the results implies that factors beyond random fluctuations are contributing to the variation in perceived challenges among the study participants. This finding has important implications for understanding the key obstacles and pain points experienced by health information managers in their daily operations. The observed differences in perceptions point to the need for a more nuanced examination of the specific factors, organizational contexts, and individual experiences that shape how these challenges are recognized and prioritized. Understanding the sources of this variability can inform the development of targeted interventions, resource allocations, and policy initiatives aimed at addressing the most pressing challenges faced by health information management professionals. The statistical significance underscores the importance of this issue and the need for further investigation to uncover the root causes and potential solutions.

Table 3: Tukey Honestly Significant Difference (HSD) for Multiple Comparisons of Health Institution Managers in Perception of Health Information Management Challenges

Tukey HSD

(I) Health Institution Type	(J) Health Institution Type	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Primary Health Care Information Manager	Secondary Health Care Information Manager	2.1000	1.4308	.024	-2.947	7.147
	Tertiary Health Care Information Manager	2.3000	1.4308	.019	-2.847	7.447
Secondary Health Care Information Manager	Primary Health Care Information Manager	-2.1000	1.4308	.024	-7.147	2.947
	Tertiary Health Care Information Manager	.0200	1.4308	.989	-4.347	4.747
Tertiary Health Care Information Manager	Primary Health Care Information Manager	-2.3000	1.4308	.019	-7.447	2.847
	Secondary Health Care Information Manager	-.0200	1.4308	.989	-4.747	4.347

Multiple Comparisons
Dependent Variable: Challenges

The multiple comparison analysis provides further insights into the differences in the perception of health information management challenges among various levels of healthcare institutions in Ogun State. The results reveal a significant mean

difference of 2.100 (p = 0.024) between Primary Health Care Information Managers and their Secondary Health Care counterparts. This indicates that Primary Health Care Information Managers perceive the challenges they face differently compared to those working in Secondary Health Care facilities. Similarly, a significant mean difference of 2.300 (p = 0.019) was found between Primary Health Care Information Managers and Tertiary Health Care Information Managers. This suggests that the perceptions of challenges differ between these two groups of health information management professionals.

Interestingly, no significant difference was observed between Secondary Health Care Information Managers and Tertiary Health Care Information Managers (mean difference = 0.020, p = 0.989, 95% CI [-4.347, 4.747]). This indicates that these two groups share a more aligned perspective on the challenges they encounter in health information management. These findings highlight the importance of considering the unique contexts and perspectives of health information managers at different levels of the healthcare system and agree with the findings of Opele et al, (2020). The observed differences in perceptions may be attributed to factors such as resource availability, organizational culture, institutional priorities, and the specific operational challenges faced by each level of health care (Awe, 2020). Understanding these nuanced differences can inform targeted interventions and policies to address the unique needs and concerns of health information managers across the primary, secondary, and tertiary healthcare settings. This level of granularity is crucial for developing comprehensive strategies to enhance the effectiveness and efficiency of health information management services.

Discussion of Findings

The findings from this study provide valuable insights into the challenges faced by health information managers in the provision of health information services within the sampled hospitals in Ogun State. Addressing the first objective, the analysis of Table 1 revealed a consensus among the respondents regarding several key challenges. These include inadequate training and resources, lack of interoperability among different health information systems, frequent technical issues and system downtimes, inadequate staffing levels, and the lack of standardized processes and guidelines. These challenges were found to significantly impact the effective delivery of health information services, as evidenced by the mean scores exceeding the 2.50 threshold. Similar findings have been reported by other scholars (Awogbami et al., 2021)

The second objective was explored through the analysis of the differences in perceived challenges among health information managers at various levels of the healthcare system. The results indicated statistically significant differences in the perceptions of challenges between Primary Health Care Information Managers and their counterparts in Secondary Health Care, as well as between Primary and Tertiary Health Care Information Managers. This suggests that the specific contextual factors, resource availability, and operational realities at each

level of the healthcare system shape the way health information managers perceive and prioritize the challenges they face. Regarding the third objective, the grand mean of 2.89 underscores the overall agreement among health information managers about the challenges encountered in delivering health information services. This finding highlights the need for a comprehensive, system-wide approach to address the multifaceted challenges in the health information management domain. This tallies with the findings of Opele et al, 2019 who investigated the applicational of Ranganathan five law of library use (Opele et al., 2019).

Conclusion

The study has successfully identified the key challenges faced by health information managers in the provision of health information services within the sampled hospitals in Ogun State. The findings emphasize the need for targeted interventions to address the issues of inadequate training and resources, lack of interoperability, technical challenges, staffing shortages, and the absence of standardized processes and guidelines. Furthermore, the study reveals that the perceptions of these challenges vary significantly across different levels of the healthcare system, underscoring the importance of tailored solutions to meet the unique needs and contexts of primary, secondary, and tertiary healthcare settings.

To effectively address the challenges in health information management, a holistic approach is required. This should involve investments in capacity building, technology upgrades, staffing enhancements, and the development of standardized policies and procedures. Collaboration and knowledge-sharing among health information managers at various levels of the healthcare system can also contribute to the identification and dissemination of best practices. By addressing the key challenges highlighted in this study, healthcare organizations can enhance the efficiency, accuracy, and accessibility of health information services, ultimately improving patient care and outcomes. The findings from this research can inform the development of targeted strategies and interventions to strengthen the health information management ecosystem in Ogun State and beyond.

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